SPLIT

Dart Aerospace Ltd.

Date: Wednesday, 8/8/2007 10:23:08 AM
User: Jean-Luc Menard

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: AFT TUBE ASSEMBLY
Job Number	: 33846 -1		
Estimate Number	: 10699		
P.O. Number	: N/A	Part Number	: D3391025
This Issue	: 8/8/2007 S.O. No. : N/A	Drawing Number	: D3391 ~~UNDER REVIEW~~
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: N/A Type : LANDING GEAR	Drawing Revision	: F
Previous Run	: 33648	Material	: N/A
Written By	: 07.08.08	Due Date	: 8/15/2007 Qty: 1 Um: Each
Checked & Approved By	:		
Comment	: Est Rev B 06-02-07 ECN773 dwg rev. D EC		
	Est Rev:C 06-03-28 Update Manufacturing Instructions		
	JLM		
	est rev D 07.03.20 revF dwg ec		

07.08.08

Additional Product

Job Number:

Seq. #:	Machine Or Operation:	Description :
1.0	D6014090	ALUMINUM EXTRUSION

Comment: Qty.: 1.0000 f(s)/Unit Total : 1.0000 f(s)
ALUMINUM EXTRUSION
Pick:

Qty	Part Number	Description	Batch
1	D6014-090	Extrusion	B26546

Identify as D3391-3

S.A 07/08/08

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE

PTO →

Comment: MORI SEIKI CNC LATHE LARGE
Turn as per Folio FA599 Rev: ~~N/A~~ F & Dwg D3391 Rev: ~~N/A~~ F

S.B 07/09/08

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE

Comment: INSPECT PARTS AS THEY COME OFF MACHINE

S.F 07/08/29

4.0	HAAS1	HAAS CNC VERTICAL MACHINING #1

Comment: HAAS
1-Machine as per Folio FA 599 Rev: F & Dwg D3391 Rev: F

2-Deburr

SA 07/01/04

Form: rprocess

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes (No) DQA: D Date: 7/4/17

QA: N/C Closed: _____ Date: _____

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07/08/16	2.0.	Tube had vibration at one end and to remove IT The cote 3.200 ± .010 was 3.188. Tube # 2.	~~pH~~ per QSI 042 07.08.30	~~Initials~~ DEVIATION IS ACCEPTABLE. SEE ATTACHED E-MAIL	5:F 07/08/16	07/08/30	pH per QSI 042 07.08.30	07/08/30
		R.C. RPM (speed) was incorrect. Program error						

NOTE: Date & initial all entries

Date: Wednesday, 8/8/2007 10:23:08 AM
User: Jean-Luc Menard

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 33846

Part Number: D3391025

Job Number:

Seq. #:	Machine Or Operation:	Description :
5.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE

Comment: INSPECT PARTS AS THEY COME OFF MACHINE

JL 07/11/04

6.0	QC8	SECOND CHECK

Comment: SECOND CHECK

07-11-04

7.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1

Comment: LANDING GEAR RESOURCE 1
1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

7-11-5

8.0	BENDING	BENDING MACHINE

Comment: NC Bender
Form as per Dwg D3391 Using Bend Prog 3391025

FL/SR 7-11-5 (5)

9.0	QC5	INSPECT WORK TO CURRENT STEP

Comment: INSPECT WORK TO CURRENT STEP

07/11/05 (x5)

10.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1

Comment: LANDING GEAR RESOURCE 1
1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.

DP 7-11-6 (3)

3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig .
*****Do Not Open To Finished Size*****

4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.

5-Open up all wearshoe & wearplate and float bag holes to .257" + countersink as per Dwg D3391.

6-Deburr

JL 7-11-5 (3)

Tools: rill

Form: rprocess

Date: Wednesday, 8/8/2007 10:23:08 AM
User: Jean-Luc Menard

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 33846

Part Number: D3391025

Job Number:

Seq. #:	Machine Or Operation:	Description :
11.0	QC5	INSPECT WORK TO CURRENT STEP
	Comment: INSPECT WORK TO CURRENT STEP	BL 07.11.15 (3)
12.0	HAND FINISHING1	HAND FINISHING RESOURCE #1
	Comment: HAND FINISHING RESOURCE #1 Acid etch and Alodine as per QSI 005 4.1	M 7-11-15 (3)
13.0	POWDER COATING	POWDER COATING
	Comment: POWDER COATING Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3	M 105914 M. BR 07-11-16 (3).
14.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION
	Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION	BL 07/11/16 (3)
15.0	D2646	Aft Cap (2X)
	Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Aft Cap Pick: Qty Part Number Description Batch 1 D2646 Aft Cap B 32427 M.	
16.0	D35371	WEARPAD (2X)
	Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) WEARPAD	B 34943 M.
17.0	D35377	Wearpad (2X)
	Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Wearpad	B 33869 M.
18.0	D35531	Gasket (2X)
	Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Gasket	B 31630 M.

Date: Wednesday, 8/8/2007 10:23:08 AM
User: Jean-Luc Menard

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services **Drawing Name:** AFT TUBE ASSEMBLY

Job Number: 33846 **Part Number:** D3391025

Job Number:

Seq. #:	Machine Or Operation:	Description :	
19.0	D35533	Gasket	~~X~~ (2X)

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Gasket
B32746 m.

20.0	AESS10KB366	INSERT NAS1330S3KB366 M107818	(14X) ~~X~~

Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)
Insert
Pick:

Qty	Part Number	Description	Batch
14	AESS10KB366	Insert	M104192 m. (28X)

21.0	AESS10KB316	INSERT NAS1330S3KB316 M107818	(2X) ~~X~~

Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
INSERT
Pick:

Qty	Part Number	Description	Batch
2	AESS10KB316 or NAS1330C3KB316	Insert	M17905 m. (4X)

22.0	AESS10KB266	INSERT NAS1330S3KB266 M104651	(6X) ~~X~~

Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)
INSERT
Pick:

Qty	Part Number	Description	Batch
2	AESS10KB266 or NAS1330C3KB266	Insert	~~M10590~~ M17905 m. (12X)

23.0	NAS1330C3KB166	INSERT NAS1330S3KB166 M107819	(12X) ~~X~~ (24X)

Comment: Qty.: 12.0000 Each(s)/Unit Total : 12.0000 Each(s)
INSERT
Pick:

Qty	Part Number	Description	Batch
8	NAS1330C3KB166	Insert	M106192 m.

07/11/16

Form: rprocess

Date: Wednesday, 8/8/2007 10:23:08 AM
User: Jean-Luc Menard

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 33846

Part Number: D3391025

Job Number:

Seq. #:	Machine Or Operation:	Description :	
24.0	AN3C4A	BOLT	6X

Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
Bolt
Pick:

Qty	Part Number	Description	Batch
2	AN3C4A	Bolt	M106043

M.L

25.0	AN3C5A	Bolt	24X

Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s) M106112 M.L
Bolt

26.0	AN960C10L	washer	30X

Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
Inventory
Pick:

Qty	Part Number	Description	Batch
2	AN960C10L	Washer	M106242

M.L

27.0	NAS1515H3L	WASHER	6X

Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
WASHER
Pick:

Qty	Part Number	Description	Batch
2	NAS1515H3L	Washer	M106116

M.L

28.0	HAND FINISHING1	HAND FINISHING RESOURCE #1	2X

Comment: SMALL & MEDIUM FAB RESOURCE 1
1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391 M105585
A/ R Sikaflex-241/-291 _____
Sikaflex expiry date: 08/07

07/11/16
M.L / BR/FL

29.0	QC5	INSPECT WORK TO CURRENT STEP	3

M.L 07 11 16

Comment: INSPECT WORK TO CURRENT STEP

Form: rprocess

Date: Wednesday, 8/8/2007 10:23:08 AM
User: Jean-Luc Menard

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 33846

Part Number: D3391025

Job Number:

Seq. #:	Machine Or Operation:	Description :
30.0	PACKAGING 1	PACKAGING RESOURCE #1

Comment: PACKAGING RESOURCE #1
Identify and Stock
Location:_____

MP 33974

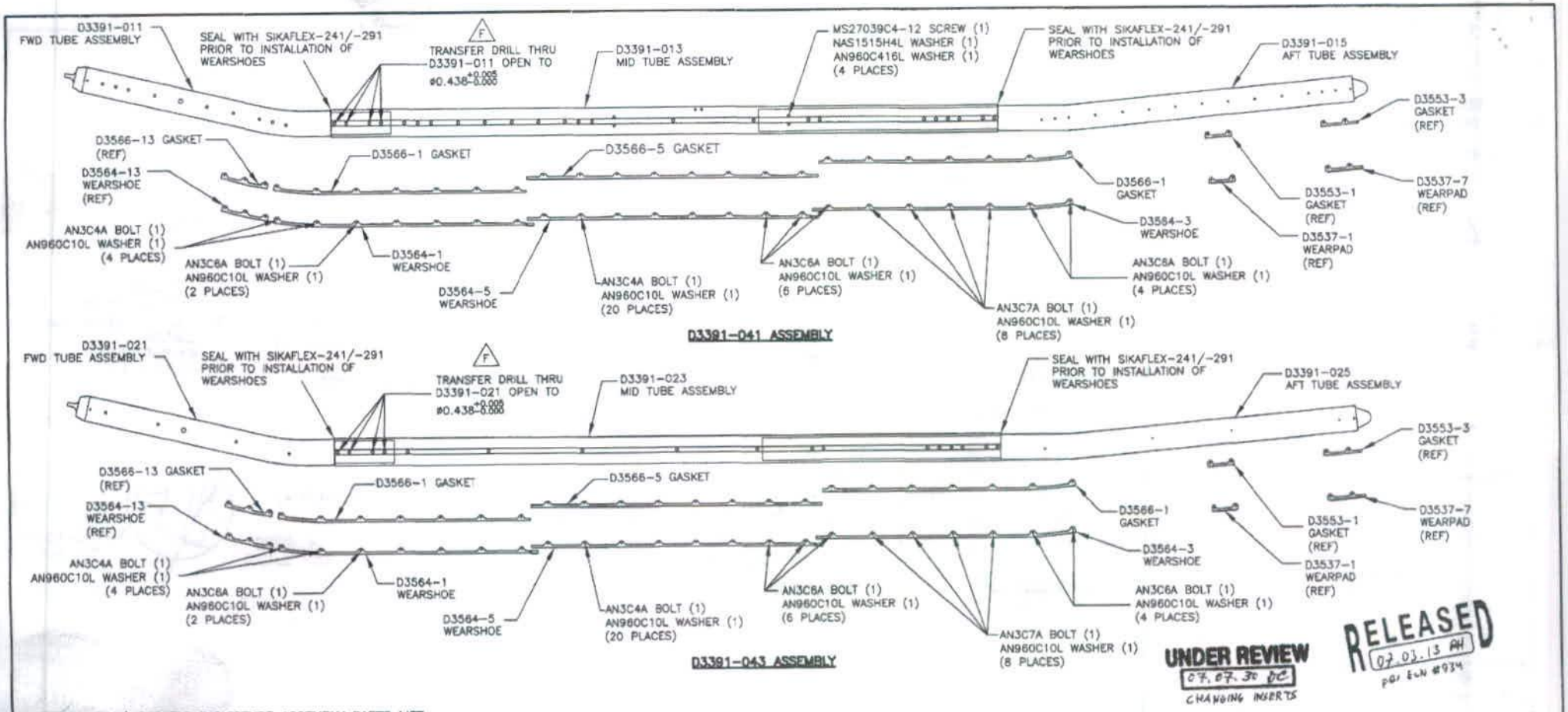
31.0	QC21	FINAL INSPECTION/W/O RELEASE

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion

(1) Dale 11/9
07.11.16

Form: rprocess



UNDER REVIEW
07.07.30 DC
CHANGING INSERTS

RELEASED
07.03.13 AH
per ECN #934

D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

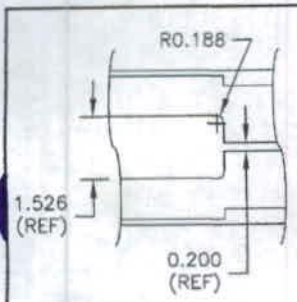
QTY -041	QTY -043	PART NUMBER	DESCRIPTION
X		D3391-041	FLOAT SKIDTUBE ASSEMBLY
	X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
	1	D3391-021	FWD TUBE ASSEMBLY
	1	D3391-023	MID TUBE ASSEMBLY
	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	3	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4		MS27039C4-12	SCREW
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER

GENERAL NOTES

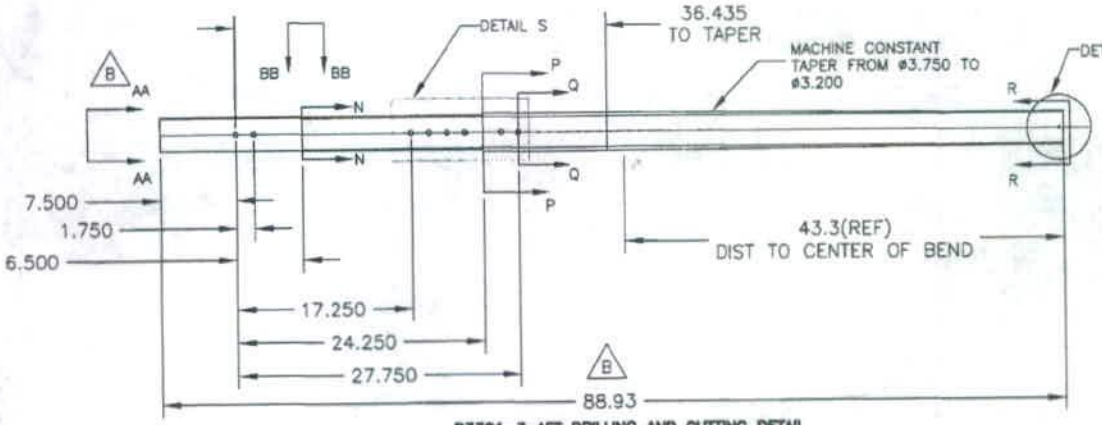
1) ALL DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
3) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
   POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
4) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (ø0.250-ø0.257) FOR WEARSHOE INSERTS. C'SINK ø0.391/ø0.425 x 100° AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED

F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE

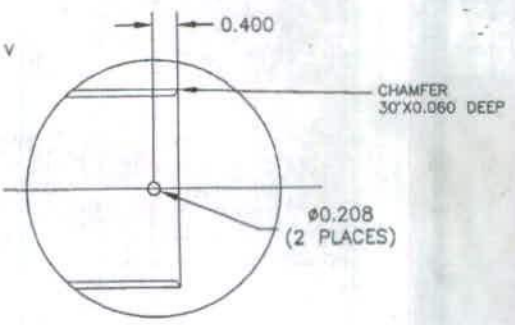
DESIGN	DRAWN BY	DART AEROSPACE USA, INC. PORT HADLOCK, WA
PH	PH	
CHECKED	APPROVED	DRAWING NO. D3391 REV. F
		SHEET 1 OF 5
DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE SCALE NTS



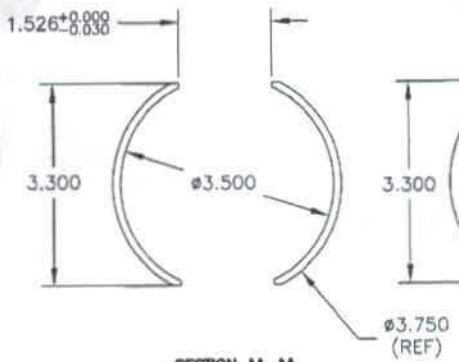
VIEW BB–BB
(SCALE 1:3)



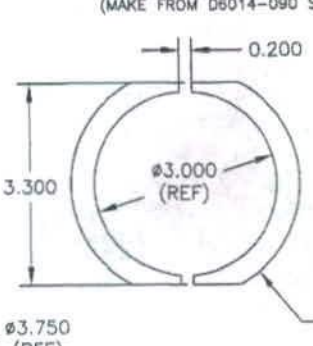
D3391–3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014–090 SKIDTUBE MATERIAL)



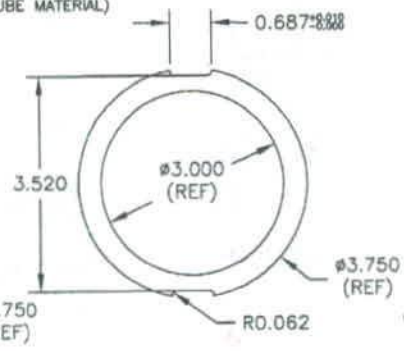
DETAIL V
(SCALE 1:2)



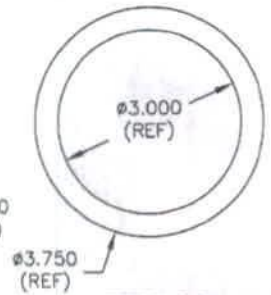
SECTION AA–AA
(SCALE 1:2)



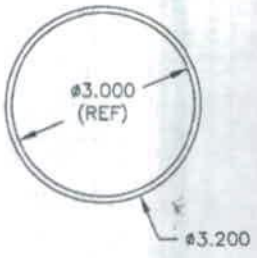
SECTION N–N
(SCALE 1:2)



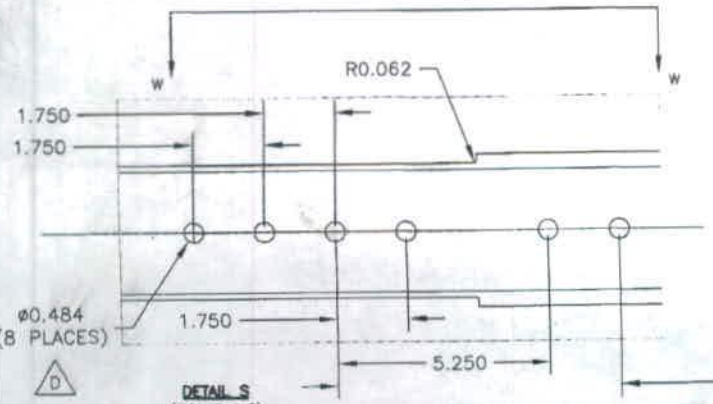
SECTION P–P
(SCALE 1:2)



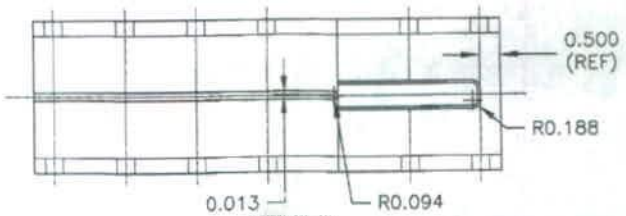
SECTION Q–Q
(SCALE 1:2)



SECTION R–R
(SCALE 1:2)



DETAIL S
(SCALE 1:3)

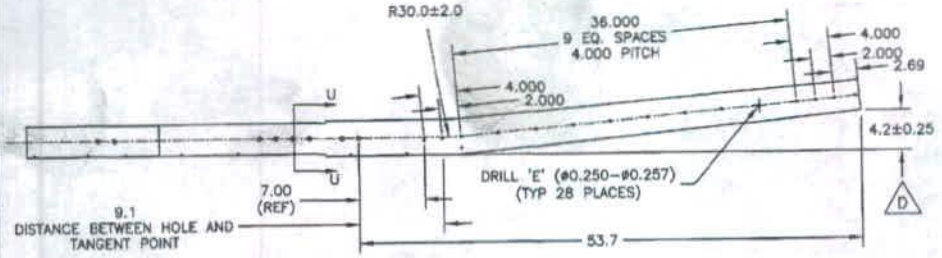


VIEW W–W
(SCALE 1:3)

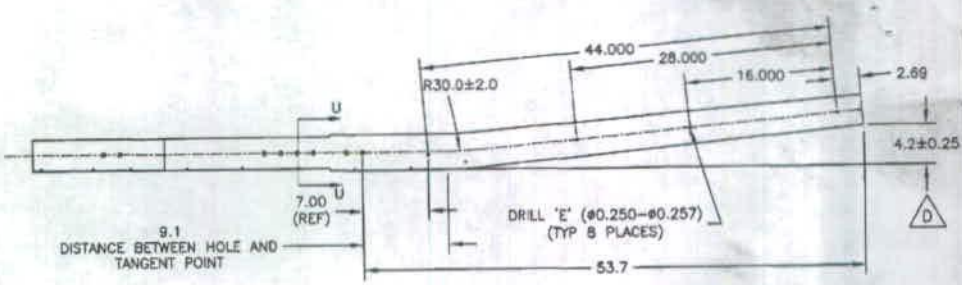
UNDER REVIEW
07.07.30 DC
CHANGING INSERTS

RELEASED
07.03.13 AH
per ECN #934

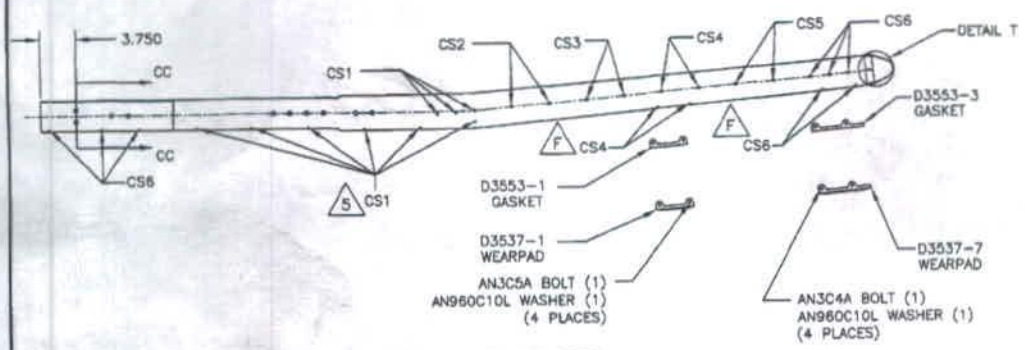
DESIGN	DRAWN BY	DART AEROSPACE USA, INC. PORT HADLOCK, WA
PH	PH	
CHECKED	APPROVED	DRAWING NO. D3391 REV. F
		SHEET 4 OF 5
DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE SCALE 1:12



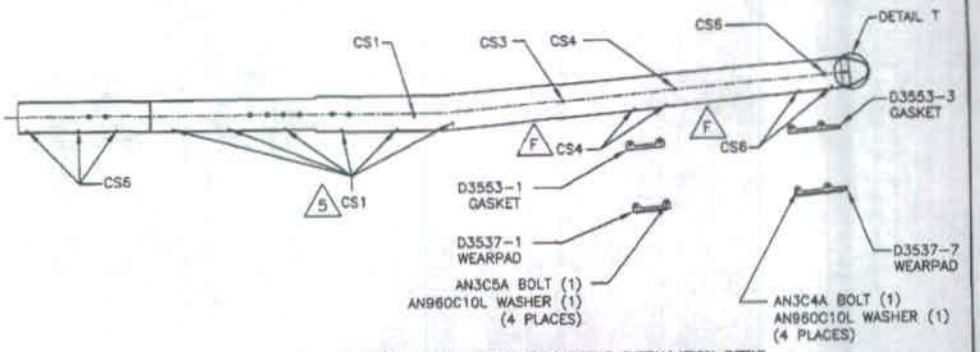
D3391–015 BENDING AND ASSEMBLY DETAIL



D3391–025 BENDING AND ASSEMBLY DETAIL



D3391–015 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)



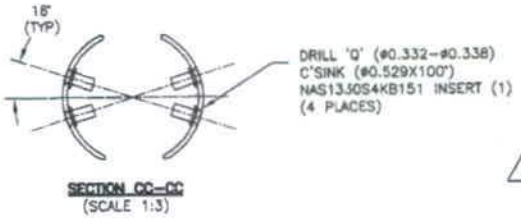
D3391–025 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)

RELEASED
07.03.13 RH
per ECN #934

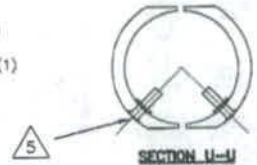
UNDER REVIEW
07.07.30 DC
CHANGING INSERTS

D3391–015/–025 AFT TUBE ASSEMBLY PARTS LIST

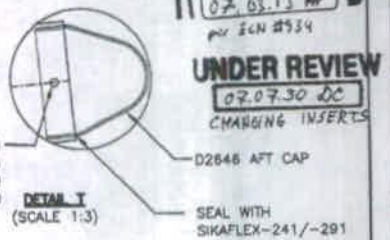
QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER



SECTION CC–CC
(SCALE 1:3)



SECTION U–U
(SCALE 1:3)



DETAIL T
(SCALE 1:3)

C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1–CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	∅0.425	NAS1330S3KB366
CS2	4		∅0.391	NAS1330S3KB366
CS3	4	2	∅0.391	NAS1330S3KB316
CS4	8	6	∅0.391	NAS1330S3KB266
CS5	4		∅0.391	NAS1330S3KB216
CS6	16	12	∅0.391	NAS1330S3KB166

DESIGN	DRAWN BY	DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED	APPROVED	DRAWING NO. D3391 REV. F
DATE 07.01.18		SHEET 5 OF 5
		TITLE 412 FLOAT SKIDTUBE SCALE 1:12

(1)

DART AEROSPACE LTD	Work Order:	
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[x] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	13.990				
3.500	+/-0.010	3.508				
88.93	+/-0.030	88.93				
44.995	+/-0.030	44.95				
3.200	+/-0.010	3.201				
1.526	+0.000/-0.030	1.526				
0.200	+/-0.010	200	✓			
7.500	+/-0.010	7.500	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750				
35.250	+/-0.010	35.25	✓			
0.400	+/-0.010					
3.300	+/-0.010	3.304	✓			
0.200	+/-0.010	.200	✓			
3.520	+/-0.010	3.522	✓			
0.687	+0.010/-0.000	.687	✓			
R0.062	+/-0.010	R.062	✓			
Ø0.484	+0.005/-0.001	Ø.484	✓			

Measured by:	SS / SN	Audited by:		Prototype Approval:	N/A
Date:	07/08/09	Date:	07.11.04	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	

(2)

DART AEROSPACE LTD	Work Order:	
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[x] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000	✓			
3.500	+/-0.010	3.501	✓			
88.93	+/-0.030	88.93	✓			
44.995	+/-0.030	44.995	✓			
3.200	+/-0.010	3.188	* ?			
1.526	+0.000/-0.030	1.524	✓			
0.200	+/-0.010	.200	✓			
7.500	+/-0.010	7.500	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	35.25				
0.400	+/-0.010					
3.300	+/-0.010	3.304	✓			
0.200	+/-0.010	.195	✓			
3.520	+/-0.010	3.523	✓			
0.687	+0.010/-0.000	.688	✓			
R0.062	+/-0.010	R.063	✓			
Ø0.484	+0.005/-0.001	Ø.486	✓			

Measured by:		Audited by:		Prototype Approval:	N/A
Date:	07/04/09	Date:	07.11.04	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	

(3)

DART AEROSPACE LTD	Work Order:	
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[x] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000	✓			
3.500	+/-0.010	3.501	✓			
88.93	+/-0.030	88.93	✓			
44.995	+/-0.030	44.995	✓			
3.200	+/-0.010	3.201	✓			
1.526	+0.000/-0.030	1.525	✓			
0.200	+/-0.010	.199	✓			
7.500	+/-0.010	7.500	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	35.25				
0.400	+/-0.010					
3.300	+/-0.010	3.305	✓			
0.200	+/-0.010	.200	✓			
3.520	+/-0.010	3.521	✓			
0.687	+0.010/-0.000	.688	✓			
R0.062	+/-0.010	R.062	✓			
Ø0.484	+0.005/-0.001	Ø.486	✓			

Measured by:	S.F / SH	Audited by:		Prototype Approval:	N/A
Date:	02/28/07	Date:	02.11.07	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	

(4)

DART AEROSPACE LTD	Work Order:	
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[x] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000				
3.500	+/-0.010	3.501				
88.93	+/-0.030	88.93				
44.995	+/-0.030	44.995				
3.200	+/-0.010	3.201				
1.526	+0.000/-0.030	1.520	✓			
0.200	+/-0.010	.201	✓			
7.500	+/-0.010	7.500	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	35.25				
~~0.400~~	~~+/-0.010~~	N/A	✓		07.11.04.	
3.300	+/-0.010	3.302	✓			
0.200	+/-0.010	.201	✓			
3.520	+/-0.010	3.519	✓			
0.687	+0.010/-0.000	.688	✓			
R0.062	+/-0.010	R.063	✓			
Ø0.484	+0.005/-0.001	Ø.485	✓			

Measured by:	S.P / SH	Audited by:		Prototype Approval:	N/A
Date:	07/08/16	Date:	07.11.04	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	

(5)

DART AEROSPACE LTD	Work Order:	
Description: Float Skidtube (412)	Part Number:	D3391-3
Inspection Dwg: D3391 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[X] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000				
3.500	+/-0.010	3.500				
88.93	+/-0.030	88.93				
44.995	+/-0.030	44.995				
3.200	+/-0.010	3.200				
1.526	+0.000/-0.030	1.523	/			
0.200	+/-0.010	.198	/			
7.500	+/-0.010	7.500	/			
27.750	+/-0.010	27.750	/			
31.750	+/-0.010	31.750	/			
35.250	+/-0.010	35.25				
0.400	+/-0.010					
3.300	+/-0.010	3.302	/			
0.200	+/-0.010	.198	/			
3.520	+/-0.010	3.517	/			
0.687	+0.010/-0.000	.687	/			
R0.062	+/-0.010	R.065	/			
Ø0.484	+0.005/-0.001	.486	/			

Measured by:	SE	Audited by:		Prototype Approval:	N/A
Date:	07/08/16	Date:	07.11.04	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	

Peter Hum

From: David Shepherd [dshepherd@dartaero.com]
Sent: August 29, 2007 6:33 PM
To: 'Peter Hum'
Subject: RE: D3391-5 aft tube taper deviation

Peter,

Based on your analysis, I think the deviation is acceptable.

David

From: Peter Hum [mailto:phum@dartaero.com]
Sent: Tuesday, August 28, 2007 7:24 AM
To: 'David Shepherd'
Subject: RE: D3391-5 aft tube taper deviation

David,

a) The approved analysis we have only takes the section immediately aft of the aft saddle. This is donated by Section A-A in the attached sketch.
b) I took analysis at Section B-B (start of taper) and C-C (mid point of taper) and have shown that these have increasing positive margins. These sections ARE NOT in the approved analysis. I think this would be easier since I can't take analysis at every location on the taper.

I am showing that despite the change in taper, positive margins still exist throughout the skidtube.

Peter

From: David Shepherd [mailto:dshepherd@dartaero.com]
Sent: August 22, 2007 10:46 PM
To: 'Peter Hum'
Subject: RE: D3391-5 aft tube taper deviation

Peter,

I can't tell from what you present in the email if the tube is OK or not.
Do we still have a positive margin of safety everywhere based on our approved analysis?
It might be better to calculate new margins at critical sections in addition to your generalized argument.

Thanks,
David

From: Peter Hum [mailto:phum@dartaero.com]
Sent: Tuesday, August 21, 2007 10:08 AM
To: 'David Shepherd'
Subject: D3391-5 aft tube taper deviation

David,

Manufacturing is machining a D3391-5 aft tube. The material had chatter marks from the machine. In order to

blend out the chatter marks; the machinist removed more material and extended the taper in order to blend it in to the straight section.

The analysis we have for this area of skidtube is for a point just aft of the aft saddle 43.754". The dimensions are OD=3.750", ID=3.000". Since the taper ends 7.00" AFT of the analysis point the moment will be less here.

The attached analysis shows that the Moment (F*d) decreases FASTER than the decrease of Moment of Inertia (I).

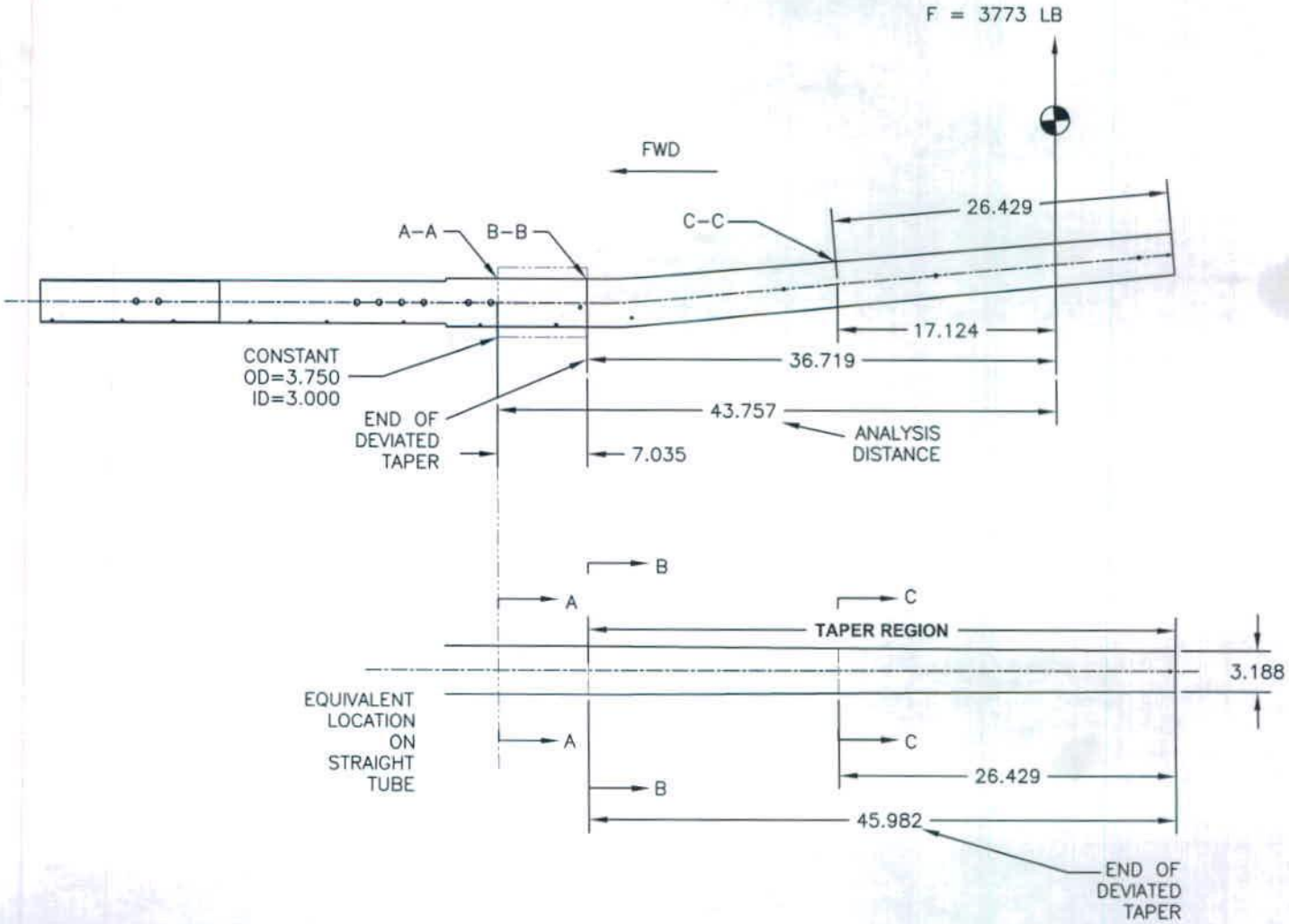
I performed analysis with the deviated taper and it shows that the moment decreases as we go down the taper toward the center of buoyancy of the aft bag; the Moment gets smaller as distance from center of buoyancy gets smaller.

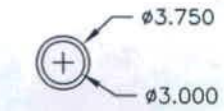
Is this deviation acceptable?

If you need clarification, just e-mail me back

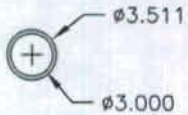
Peter

<<...>>





A-A AND B-B



C-C

AT A-A
STRESS = MC/I
M=3773*43.757
C=D/2=3.75/2=1.875
I=5.731
STRESS = 54018
YIELD STRENGTH = 57000
MARGIN = (57000/54018)-1
MARGIN = **0.06**

AT B-B
STRESS = 45326
YIELD STRENGTH = 57000
MARGIN = (57000/45326)-1
MARGIN = **0.26**

AT C-C
STRESS = 32599
YIELD STRENGTH = 57000
MARGIN = (57000/32599)-1
MARGIN = **0.75**